

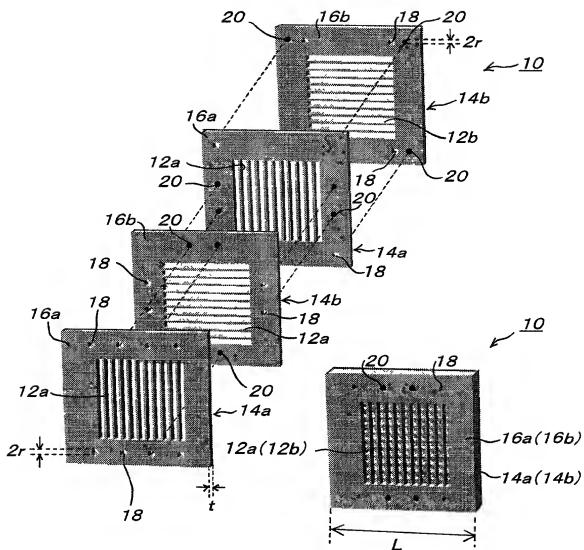
FIG. 1(b)**FIG. 1(a)**

FIG. 2(a)

FABRICATION OF AIR BRIDGE TYPE TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATE

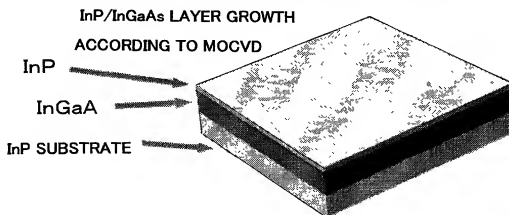


FIG. 2(b)

EB LITHOGRAPHY & DRY ETCHING

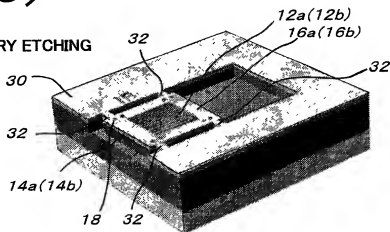
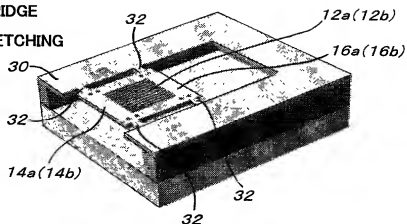


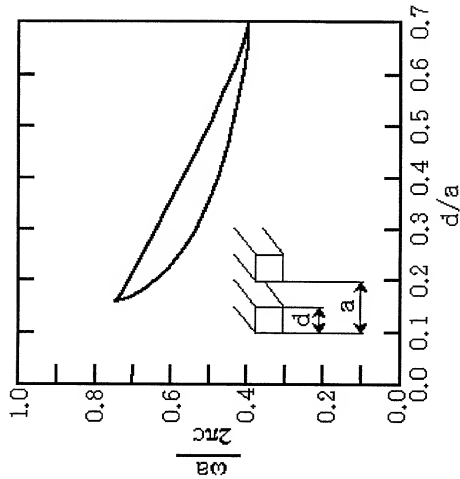
FIG. 2(c)

MAKING TO BE AIR BRIDGE
ACCORDING TO WET ETCHING



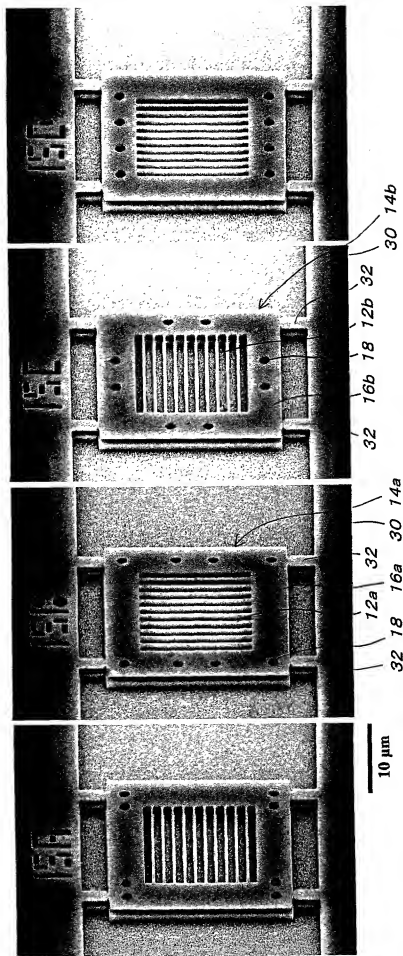
10058337.013002

FIG. 3



RELATIONSHIP BETWEEN RATIO OF WIDTH OF BLOCK AND ITS PERIOD,
AND REGION WHERE BANDGAP OF 4 MICRON BAND OPENS IN CASE WHEN INP PLATE
THICKNESS IS 0.5 MICROMETER

FIG. 4



TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATES
EACH HELD BY NARROW FOUR BRIDGES IN MIDAIR

FIG. 5(a)

AIR-BRIDGING TWO-DIMENSIONAL
PHOTONIC CRYSTAL PLATE

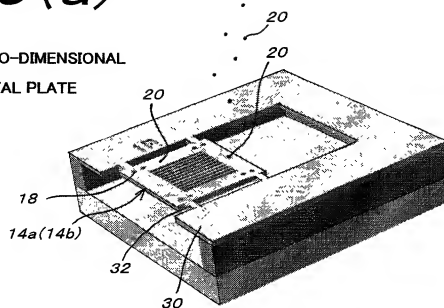


FIG. 5(b)

LOCATING MICROSPHERES ARE
INSERTED INTO POSITIONING
THROUGH HOLES

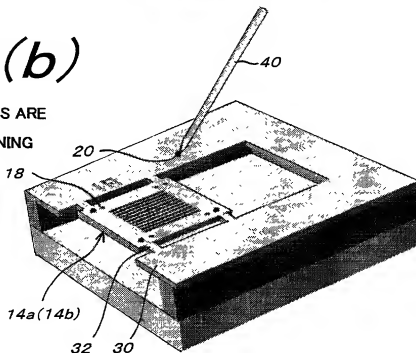


FIG. 6(a)

PATTERN IS TRANSFERRED DOWN
TO InP SUBSTRATE IN CASE OF ETCHING

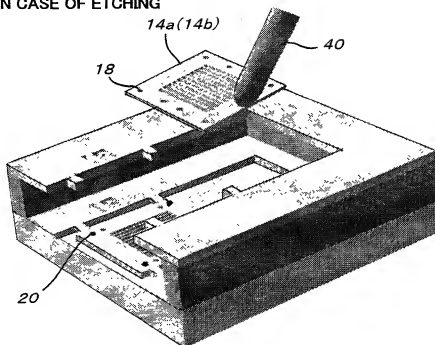


FIG. 6(b)

PATTERN ETCHED ON InP SUBSTRATE IS
FIRST LAYER, AND PLATES ARE
SEQUENTIALLY LAMINATED
THEREON

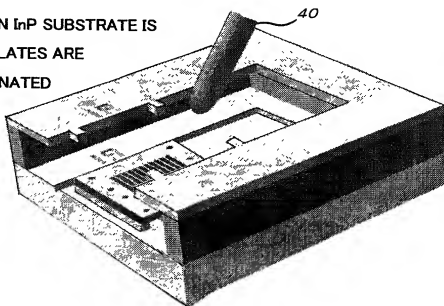


FIG. 7(a)

ANOTHER TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATE
IS CUT OFF AND PICKED UP

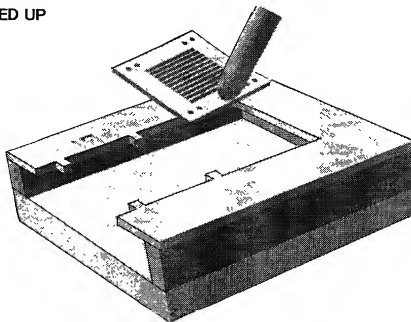


FIG. 7(b)

THE PLATE THUS PICKED UP IS PLACED ON
TWO-DIMENSIONAL PHOTONIC CRYSTAL
PLATE INTO WHICH MICROSPHERES
HAVE BEEN INSERTED

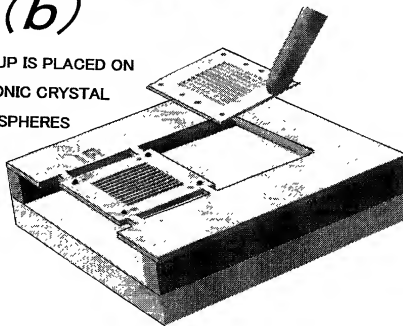


FIG. 8(a)

SPHERES ARE INSERTED INTO POSITIONING HOLES IN PATTERNS
TRANSFERRED ON InP SUBSTRATE

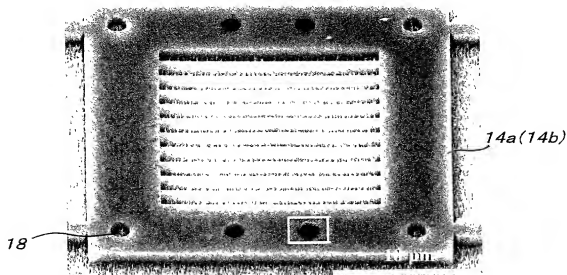


FIG. 8(b)

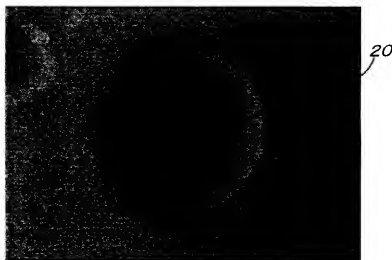


FIG. 9(a)

TWO-LAYER LAMINATION

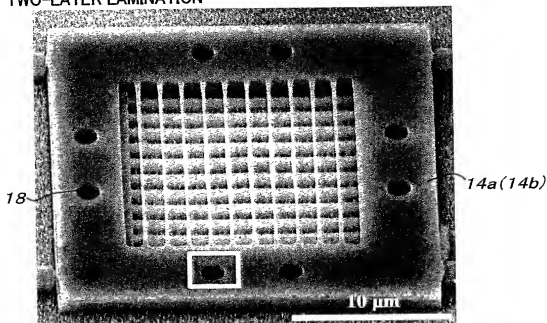
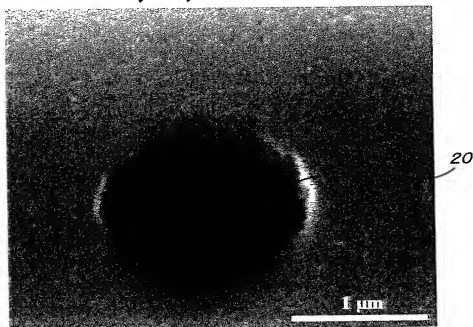


FIG. 9(b)



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FIG. 10(a)

THREE-LAYER LAMINATION

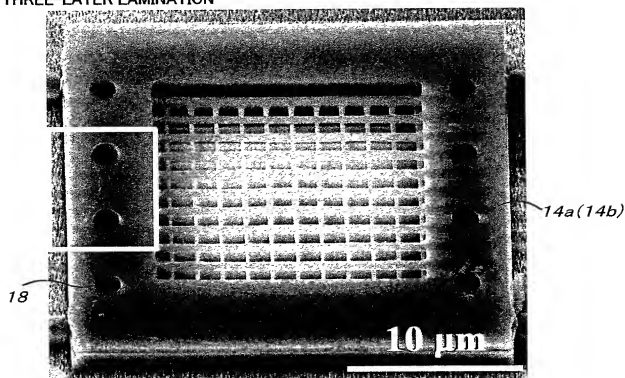
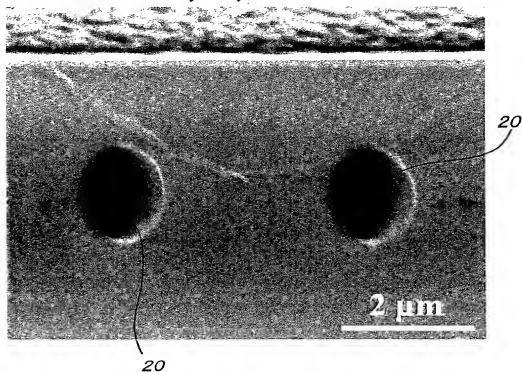
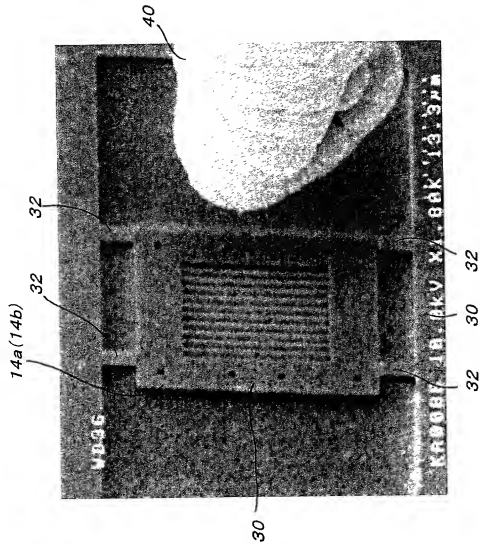


FIG. 10(b)

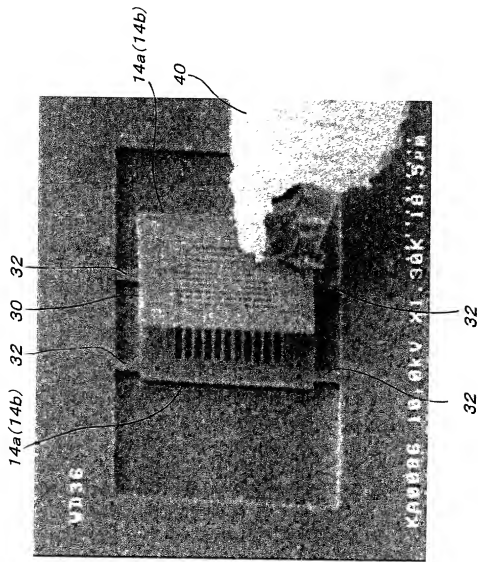


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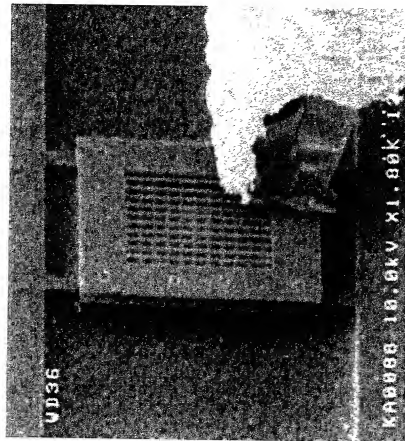
FIG. 11

STATE WHEREIN BRIDGES ARE PUSHED BY PROBE
TO CUT OFF TWO-DIMENSIONAL PHOTONIC CRYSTAL
PLATE FROM OUTER HULL REGION OF SUBSTRATE

FIG. 12



STATE WHEREIN TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATE WHICH HAD BEEN CUT OFF AND HAS BEEN PICKED UP BY PROBE IS BROUGHT ON TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATE INTO WHICH POSITIONING MICROSPHERES HAVE BEEN ALREADY INSERTED

FIG. 13

STATE WHEREIN TWO-DIMENSIONAL PHOTONIC CRYSTAL PLATES
HAVE BEEN SUBSTANTIALLY PERFECTLY SUPERPOSED

FIG. 14

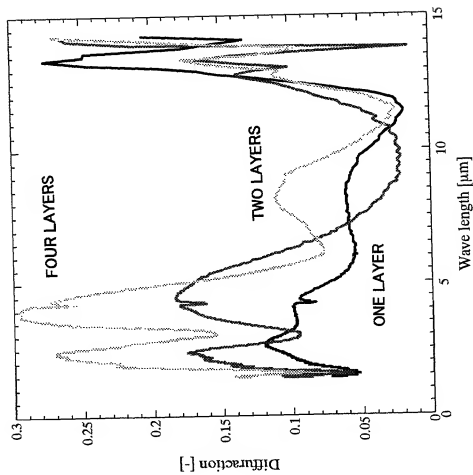


FIG. 15(a)

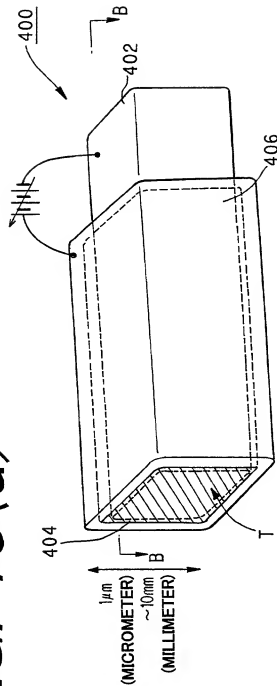


FIG. 15(c)

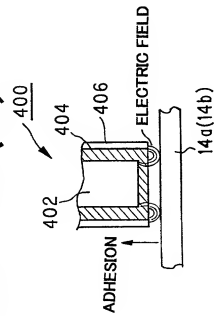


FIG. 15(b)

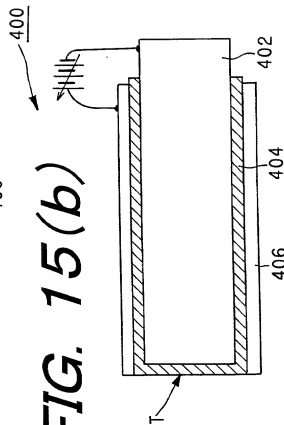


FIG. 16(a)

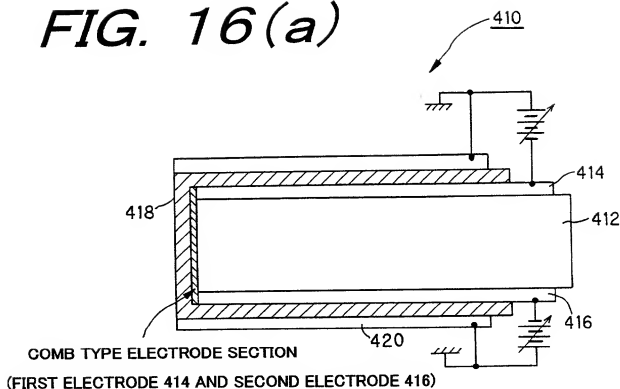


FIG. 16(b)

FIGURE SHOWING THE CASE WHEN ONLY FIRST ELECTRODE 414
AND SECOND ELECTRODE 416 ARE FORMED

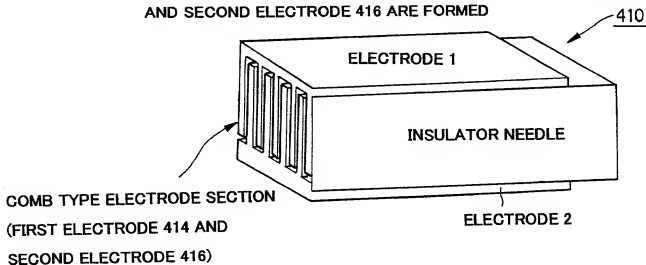


FIG. 17(a)

CASE WHERE A PART OF PATTERNS IN TWO-DIMENSIONAL PHOTONIC CRYSTAL
IS USED TO CONDUCT POSITIONING

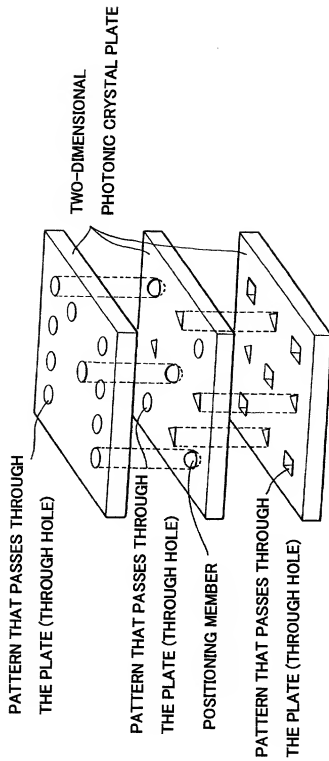


FIG. 17(b)

CASE WHERE POSITIONING IS CONDUCTED BY USING THROUGH HOLES DEFINED ON PATTERNS IN TWO-DIMENSIONAL PHOTONIC CRYSTALS

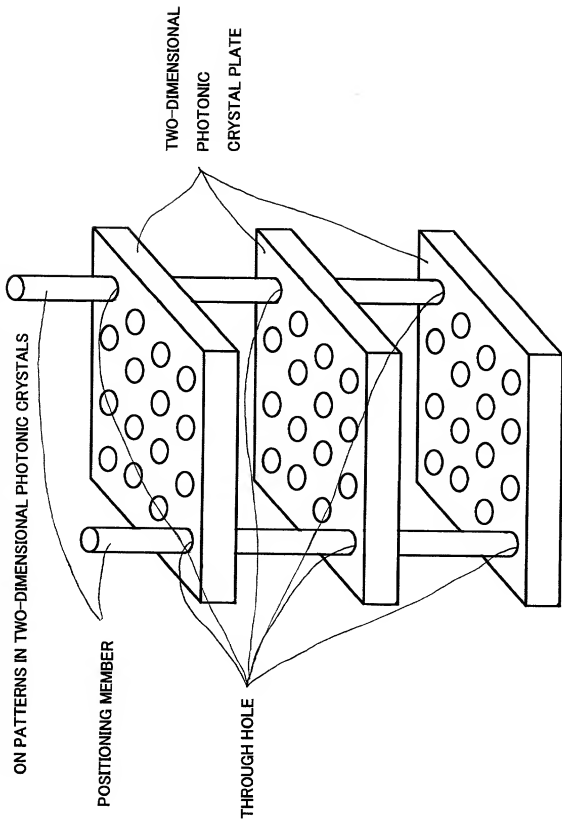


FIG. 18(a)

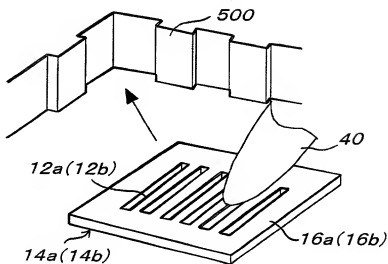


FIG. 18(b)

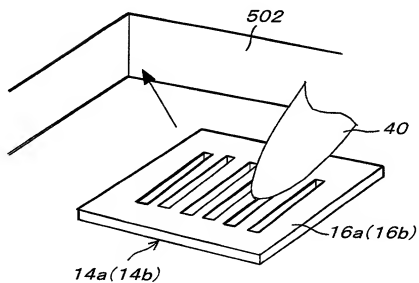


FIG. 18(c)

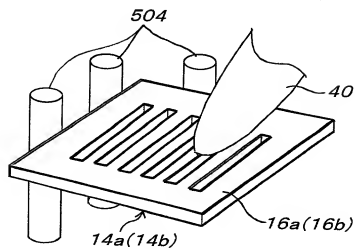


FIG. 18(d)

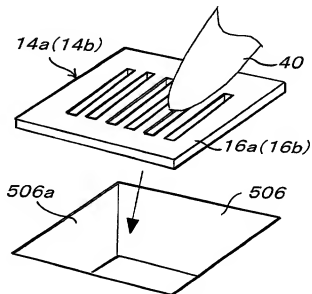


FIG. 19(a)

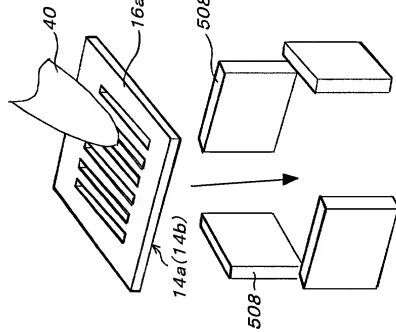


FIG. 19(b)

